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(54) Title: METHODS AND SYSTEMS FOR IDENTIFYING MICRO-RNA TARGETS AND SYNTHESIZING NOVEL MICRO-RNAs AND USES OF THE SAME

(57) Abstract: Method of identifying a microRNA-recognition element and of generating microRNAs are disclosed. System and computer programs for performing such methods are disclosed. Recombinant nucleic acid molecule comprising a heterologous coding sequences and one or more MREs are also disclosed as are isolated nucleic acid molecule comprising one or more MRE sequences and being free of a coding sequence operably linked to regulatory elements. MicroRNA generated by a methods of the invention and the use of the microRNAs to downregulate gene expression are disclosed.

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